



Town of Wallingford, Connecticut

Application: _____
Date Submitted: _____
Filing Fee Paid: _____
Date Received: _____

12 copies of
all submittals (ex.
2 of calculations)

Inland Wetlands and Watercourses Permit Application

A. Name of Applicant: _____ Date: _____
Home Address: _____ Phone: _____
Business Address: _____ Phone: _____

B. Interest in Property: Own: Rent: Lease: Option to Buy:
Other (please specify): _____

C. Owner of Property _____

D. Geographical Location: _____

Street Address: _____
(or Assessors Map-Block-Lot) _____
Total Area of Parcel _____

Total Area of Wetlands: _____

Total Area of Wetlands to be Altered (in acres or sq. ft.) _____

E. Names and Mailing Addresses of Abutting Property Owners:

Name	Address
h.a.	h.a.
_____	_____
_____	_____
_____	_____

F. Describe the land in sufficient detail to allow the identification of inland wetlands and watercourses, a computation of the area of wetland or watercourse disturbance, soil type(s) and vegetation:

G. Describe the proposed activity, its purposes and intended use, area of wetland to be altered (in square feet) amounts and types of fill, structures and construction activities and anticipated time of construction:

H. Describe all alternatives considered and why this proposal to alter wetlands was chosen:

I. A site plan showing existing and proposed conditions in relation to wetlands and watercourses must be submitted with this application.

J. The undersigned, as owner of the property, hereby consents to necessary and proper inspections of the above mentioned property by members and agents of the Wallingford Inland Wetlands Commission, at reasonable times, both before and after the final decision has been issued:

Signature of Owner

(+ Print name)

Date

K. The undersigned is familiar with all the information provided in this application and warrants the truth of all statements contained herein and in all supporting documents to the best of his knowledge and belief and is aware of the penalties for obtaining a permit through deception or through inaccurate or misleading information.

Signature of Applicant

(+ Print name)

Date

Additional Information Required for Significant Activities

L. Information required by Section 7.5 of the Inland Wetlands Regulations.

M. Names and mailing addresses of property owners within 500 feet of any portion of the property.

N. The undersigned certifies:

1. Any portion of the property on which the regulated activity is proposed is / is not located within 500 feet of the boundary of an adjoining municipality.
2. Traffic attributable to the completed project on the site will / will not use streets within the adjoining municipality to enter or exit the site.
3. Sewer or water drainage from the project site will / will not flow through and impact the sewage or drainage system within the adjoining municipality.
4. Water run-off from the improved site will / will not impact streets or other municipal or private property within the adjoining municipality.

N.A.

O. List any professional degrees and / or experience of any personnel in the submission of ecological and environmental information.

P. Please feel free to supply any additional information you deem necessary.

Signature of Applicant

Date

**Project Summary for Town Inland Wetland Permit Application
Northford Road over the Muddy River
Bridge No. 04832, Wallingford**

Supporting Documentation

The following documentation is enclosed in support of this permit application:

1. **CT DEEP** – Statewide Inland Wetlands & Watercourses Activity Reporting Form
2. Project Summary for Town Inland Wetland Permit Application
3. Wetland and Watercourse Impact Plan (Half Size)
4. Project Location Map, Wallingford USGS Quadrangle
5. Project Aerial Map
6. Project Photos
7. Wetlands Delineation Report, Northford Road Bridge Over Muddy Brook, Wallingford, CT, by Soil Science and Environmental Services, Inc.
8. DEEP Natural Diversity Data Base Map, June 2020- Project site is within a NDDDB identified area.
9. DEEP Natural Diversity Data Base Review, D. McKay, DEEP to J. Costello, WMC, 8/4/2017 - There are known extant populations of State Special Concern *Terrapene carolina* (eastern box turtle) and *Glyptemys insculpta* (wood turtle) in the vicinity of the project site. DEEP recommends that work should occur when these turtles are active (April 1st to September 30th). Conducting land clearing while the turtle is active will allow the animal to move out of harm's way and minimize mortality to hibernating individuals. The DEEP also recommended additional protection strategies which have been incorporated into the following Special Provision. The current DEEP NDDDB determination has expired – A new review request was submitted on November 10, 2020 and any new DEEP NDDDB recommendations will be incorporated into the contract documents.
10. Special Provision, Section 1.10 - Environmental Compliance: recommended protection strategies for eastern box and wood turtles.
11. DEEP Aquifer Protection Area Map, 9/6/2017- The project site is outside of any aquifer protection area.
12. Public Water Supply Watersheds Map, accessed online 1/4/2018 - The project site is just downstream of an identified public water supply watershed (MacKenzie Reservoir).
13. National Flood Hazard Layer FIRMette - Project site is located within an AE detailed study area with adopted regulatory discharges and flood elevations determined as well as a regulatory Floodway
14. Completed DEEP Fisheries Consultation Form – Determination: “Will Not significantly impact any fisheries and/or habitat if the below Recommendations are followed”, signed Bruce H. Williams, DEEP Fisheries Biologist 9/17/2020.
15. Plans - “Replacement of Northford Road Bridge over Muddy River”, Dated 7/31/2020 - **Under Separate Cover**
16. Hydraulic Design Report dated July 2020 - **Under Separate Cover**



Statewide Inland Wetlands & Watercourses Activity Reporting Form

*Please complete and mail this form in accordance with the instructions on pages 2 and 3 to:
DEEP Land & Water Resources Division, Inland Wetlands Management Program, 79 Elm Street, 3rd Floor, Hartford, CT 06106
Incomplete or incomprehensible forms will be mailed back to the municipal inland wetlands agency.*

PART I: Must Be Completed By The Inland Wetlands Agency

- DATE ACTION WAS TAKEN: year: Click Here for Year month: Click Here for Month
- CHOOSE ACTION TAKEN (see instructions for codes): Click Here to Choose a Code
- WAS A PUBLIC HEARING HELD (check one)? yes no
- NAME OF AGENCY OFFICIAL VERIFYING AND COMPLETING THIS FORM:
(type name) _____ (signature) _____

PART II: To Be Completed By The Inland Wetlands Agency Or The Applicant

- TOWN IN WHICH THE ACTION IS OCCURRING (type name): Wallingford
does this project cross municipal boundaries (check one)? yes no
if yes, list the other town(s) in which the action is occurring (type name(s)): _____, _____
- LOCATION (click on hyperlinks for information): USGS quad map name: Wallingford or quad number: 81
subregional drainage basin number: 5208
- NAME OF APPLICANT, VIOLATOR OR PETITIONER (type name): Town of Wallingford
- NAME & ADDRESS / LOCATION OF PROJECT SITE (type information): Northford Road Bridge No. 04832 over Muddy River
briefly describe the action/project/activity (check and type information): temporary permanent description: _____
Bridge replacement.
- ACTIVITY PURPOSE CODE (see instructions for codes): E
- ACTIVITY TYPE CODE(S) (see instructions for codes): 9, 1, 2, 12
- WETLAND / WATERCOURSE AREA ALTERED (type acres or linear feet as indicated):
wetlands: 0.00 acres open water body: 0.03 acres stream: 130 linear feet
- UPLAND AREA ALTERED (type acres as indicated): 0.211 acres
- AREA OF WETLANDS / WATERCOURSES RESTORED, ENHANCED OR CREATED (type acres as indicated): _____ acres

DATE RECEIVED:

PART III: To Be Completed By The DEEP

DATE RETURNED TO DEEP:

FORM COMPLETED: YES NO

FORM CORRECTED / COMPLETED: YES NO

**Project Summary for Town Inland Wetland Permit Application
Northford Road over the Muddy River
Bridge No. 04832, Wallingford**

Project Overview

Wengell, McDonnell and Costello Consulting Engineers (WMC) has been retained by the Town of Wallingford to perform design services for the reconstruction of Northford Road Bridge No. 04832 over the Muddy River. The roadway is a paved rural major collector which carries two lanes of traffic. The road has a northwesterly-southeasterly alignment at the crossing with the river flowing in the southwesterly direction. The bridge is located in the southeasterly portion of the Town, approximately 630 feet downstream of MacKenzie Reservoir Dam, DEEP Dam No. 148-05. This reservoir is part of the drinking water supply system for the Town of Wallingford Water Division.

The existing bridge consists of a concrete deck slab supported on concrete abutments with a 22-foot clear span hydraulic opening. It was reportedly built in 1938 and has a current structural rating of 3 (serious condition). The project proposes to replace the existing bridge with a 40-foot clear span prestressed deck unit bridge supported by integral abutments and cantilevered wingwalls on micropiles rock socketed into the bedrock. This design was selected to cause minimal impacts to the watercourse and surrounding wetlands. The 40-foot clear span opening meets the 1.2 times bank full width, as is recommended in the best management practices in the US. Army Corps of Engineers' Connecticut General Permits.

Impact Description

A total of approximately 1,550 square feet of watercourse and Connecticut wetlands will be impacted during construction. The impacts are due to both temporary and permanent conditions. Temporary impacts to the wetlands and watercourse will result from the temporary water handling cofferdams utilized to confine the site during construction. Permanent impacts will be caused by the installation of the rock vane downstream of the bridge and the toe boulders and rounded riprap added along the banks for embankment protection. The majority of permanent watercourse impacts within the channel stem from the disturbance of the streambed, during the installation of the channel boulders. Streambed material will be excavated and stockpiled while the channel toe boulders will be installed and then the streambed material will be reused to replicate existing grade. The permanent wetland impacts are a result of grading back the embankment for the new structure and the embankment protection. As noted previously, a rock vane is proposed to be installed downstream of the bridge. The rock vane was requested by DEEP Fisheries as a fisheries enhancement to provide a thermal refuge at the confluence of the unnamed tributary. In addition to the wetland and watercourse impacts, the project proposes approximately 9,200 sq. ft. of impact in the upland review area (50-foot buffer). This work is associated with the bridge replacement and roadway work.

The wetland impacts are summarized in the table on the next page. These impacts and are shown on **“Wetland and Watercourse Impact Plan”** in the attachments.

**Project Summary for Town Inland Wetland Permit Application
Northford Road over the Muddy River
Bridge No. 04832, Wallingford**

State Wetland Impacts

	Wetland		Watercourse		Total	
	sf	acres	sf	acres	sf	acres
Permanent	180	0.004	685	0.015	865	0.020
Temporary	50	0.001	635	0.015	685	0.015
Total					1,550	0.035

Upland Review Area Impacts (50 Foot Buffer): 9,200 sf (0.211 acres)

The table below identifies the types of materials being deposited and removed from the wetland and watercourse environments. In general, the project proposes to remove material fill historically placed in the wetland and watercourse environment by increasing the clear span of the bridge and grading the adjacent embankments as necessary. As noted previously, toe boulders are proposed to line the channel edges. These boulders will be placed in the narrow corridor between the ordinary high water and wetland limits. The stems of the abutments and wingwalls will be removed below grade and the footings will remain as to avoid disturbance with their removal. Toe boulders are also proposed to be installed over the partially removed abutments and wingwall footings and will also act to stabilize the proposed rounded stone riprap landward of the Muddy River. Overall, the project proposes to remove 5 cubic yards of fill material from the wetlands and watercourse environment.

Wetland/Watercourse Fill Quantities

Material Type	Quantity (cy)	Purpose
Rounded Boulders	9	Toe Boulders for streambank edge
Rounded Boulders	3	Rock Vane
Rounded Riprap	2	Bank protection
Granular Fill	1	Base for Rounded Riprap
Earth	-20	Excavation for toe boulders, rounded riprap, rock vane and embankments
Natural Streambed Material	-25	Excavated and Stockpiled
Natural Streambed Material	25	Reused Stockpile material

Total -5

Sedimentation and Erosion Control

Dewatering, sedimentation, and erosion control practices will be required for all project work as outlined in section 1.10 of the State of Connecticut Department of Transportation Standard Specifications for Roads, Bridges, Facilities and Incidental Construction, including the Department of Environmental Protection’s “Connecticut Guidelines for Soil Erosion and Sedimentation Control” and ConnDOT’s “2004 Stormwater Control Manual”

The Contractor shall maintain effective erosion and sediment controls at all times. The contractor shall prepare, in writing, an Erosion and Sediment Control Plan and submit such plan to the engineer, and review as directed for approval. The Erosion and Sediment Control Plan shall also

**Project Summary for Town Inland Wetland Permit Application
Northford Road over the Muddy River
Bridge No. 04832, Wallingford**

include plans for water handling, dewatering, and flood contingency. No construction activities shall commence until the plan is approved by the engineer. The contractor shall, at all times, comply with the approved plan.

In addition, an experienced construction inspector will be on site during construction activities and will act as the City's liaison during construction.

Construction Sequence

Northford Road will be closed for the duration of construction, and a detour with appropriate signage will be used to control traffic for the duration of the project. Construction is expected to begin in Spring of 2022 and is expected to take one construction season.

The suggested construction sequence is as follows.

Stage 1:

1. Install necessary erosion and sedimentation controls.
2. Install debris shield.
3. Remove existing superstructure.
4. Maintain existing drainage.
5. Install pump settling basin.
6. Install bridge abutments and wingwalls behind the existing abutments and wingwalls.
7. Install water handling cofferdams as shown on plans.
8. Install rock vane and remove cofferdams.

Stage 2:

1. Maintain erosion and sediment controls.
2. Maintain existing drainage.
3. Install water handling cofferdams as shown on plans.
4. Maintain pump settling basin.
5. Remove existing abutment and wingwall stems.
6. Install boulders, natural streambed material, and rounded riprap. Grade embankments.
7. Remove water handling cofferdams.
8. Install prestressed deck units.
9. Complete remaining bridge and roadwork.
10. Maintain erosion and sedimentation controls until impacted areas are stabilized and vegetation has been established.

Permits

In addition to the Town of Wallingford Inland Wetlands and Watercourses permit, a U. S. Army Corps of Engineers Self Verification and Connecticut DEEP 401 Water Quality permits will be required.

**Project Summary for Town Inland Wetland Permit Application
Northford Road over the Muddy River
Bridge No. 04832, Wallingford**

Wetlands Delineation

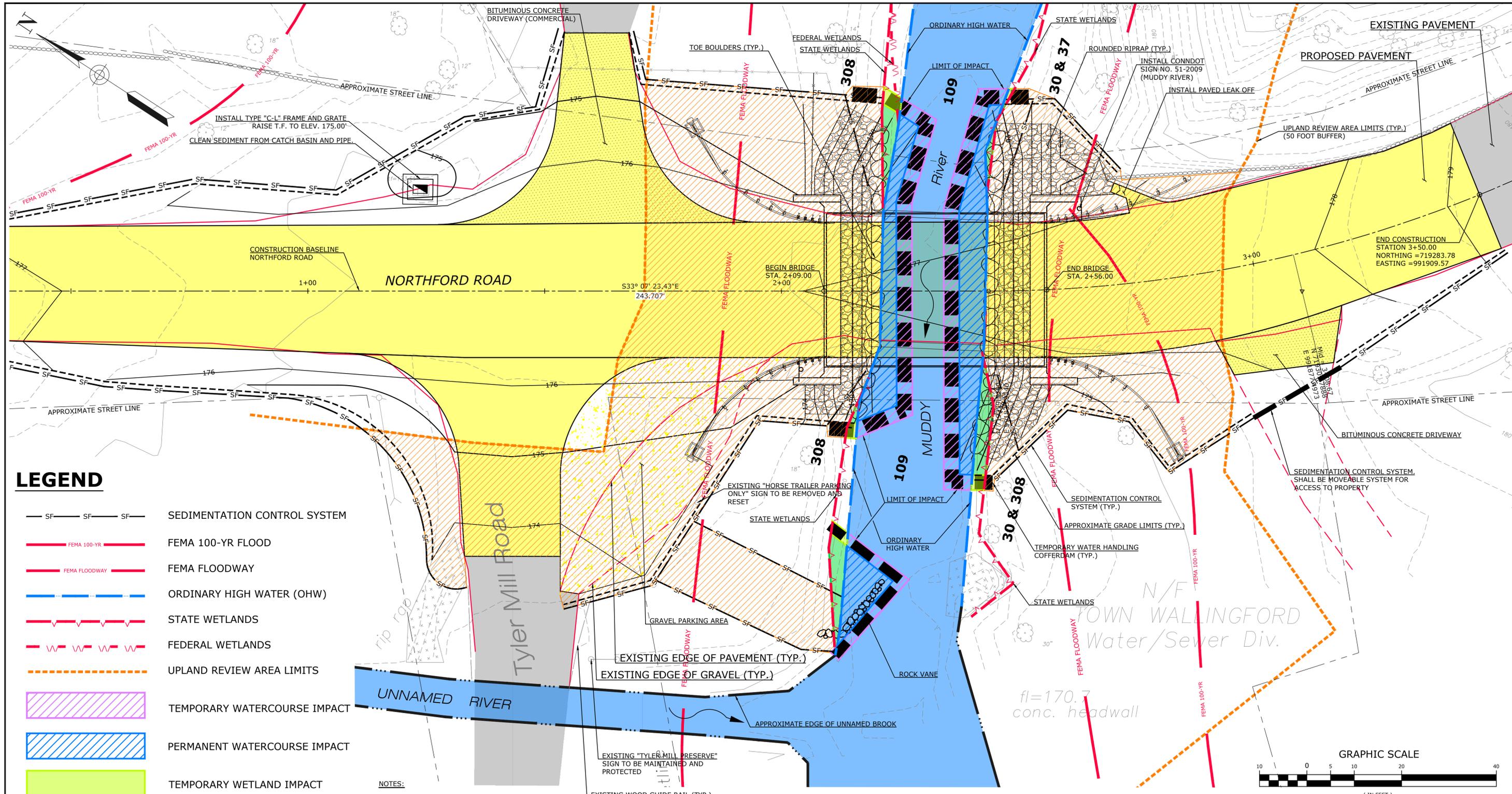
Both State of Connecticut and federal wetland boundaries and ordinary high-water limits were identified and flagged within the project limits by a certified soil scientist from Soil Science and Environmental Services, Inc. on September 19, 2016. The wetland delineation report can be found in the attachments.

Natural Diversity Data Base

The project was reviewed by the DEEP Natural Diversity Data Base in August 2017, and protected species were found in the area. This review is included in the attachments. Since the review is no longer current, a review request was submitted on November 10, 2020 and any new DEEP NDDB recommendations will be incorporated into the contract documents. Any further recommendations will be followed to minimize impacts on protected species. Please see the attached Special Provision, Section 1.10 - Environmental Compliance.

Fisheries

The proposed project has been reviewed by DEEP Fisheries, and their recommendations have been included in the design. Toe boulders will be added along the channel edges to provide refuge for small aquatic organisms and define the interface between the stream and embankments. Also, a rock vane will be installed at the outlet of the tributary downstream of the bridge. This will provide a thermal refuge at the confluence with the unnamed tributary.



THE INFORMATION, INCLUDING ESTIMATED QUANTITIES OF WORK SHOWN ON THESE SHEETS IS BASED ON LIMITED INVESTIGATIONS BY THE TOWN AND IS IN NO WAY WARRANTED TO INDICATE THE TRUE CONDITIONS OR ACTUAL QUANTITIES OR DISTRIBUTION OF QUANTITIES OF WORK WHICH WILL BE REQUIRED.

		SUPV.	J.A.C.
		DESIGN	J.A.W.
		DRAWN	D.R.B.
		CHECKED	J.A.W.
		DATE	01/03/2021
NO.	DATE	DESCRIPTION	
REVISIONS			

WMC
CONSULTING ENGINEERS

• WENGELL, McDONNELL & COSTELLO •
87 HOLMES ROAD
NEWINGTON, CT 06111
(860) 667-9624

PREPARED FOR
TOWN OF WALLINGFORD
45 SOUTH MAIN STREET
WALLINGFORD, CT 06492

**REPLACEMENT OF NORTHFORD ROAD BRIDGE OVER MUDDY RIVER
WETLAND AND WATERCOURSE IMPACT PLAN**

D - NORTHFORD ROAD - ENV. - 16022.10 - SHEET 1
SIZE PROJECT FILE NAME NUMBER REV. OF 1



SUPV.	JAC
DESIGN	
DRAWN	CMB
CHECKED	MEF
DATE	MAY 14, 2020

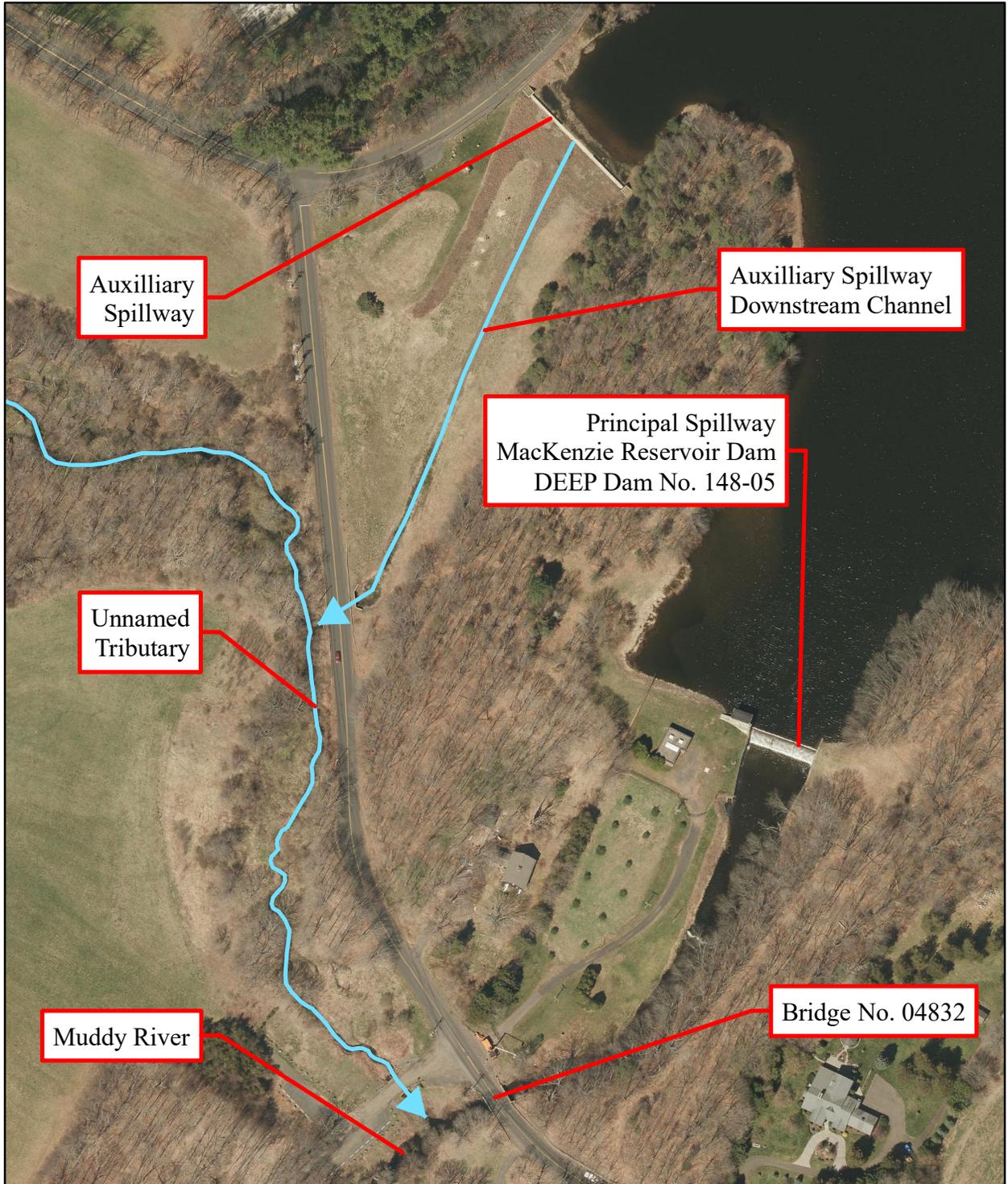

WMC
 CONSULTING ENGINEERS

 WENGELL, McDONNELL & COSTELLO
 87 HOLMES ROAD
 NEWINGTON, CT 06111
 (860) 667-9624

PREPARED FOR:
 TOWN OF WALLINGFORD
 45 SOUTH MAIN STREET
 WALLINGFORD, CT 06492

LOCATION MAP			
NORTHFORD RD OVER MUDDY RIVER WALLINGFORD, CT			
NORTHFORD RD LOCATION MAP 16022 --		SHEET 1	
PROJECT	FILE NAME	NUMBER	REV. OF
			1

Figure 1 - Site Hydraulic Layout, 2016 Aerial



0 100 200 400
Feet

1:2,400

1 inch equals 200 feet



Photo 1: Upstream Face



Photo 2: Looking upstream



Photo 3: Downstream face



Photo 4: Looking downstream



Photo 5: Looking Northwesternly



Photo 6: Looking Southeasterly



SOIL SCIENCE AND ENVIRONMENTAL SERVICES, INC.

Wetland Delineations Ecological Studies Site Assessments Project Planning Soil Testing

September 19, 2016

RECEIVED

SEP 26 2016

WENGELL, McDONNELL & COSTELLO
CONSULTING ENGINEERS

ATTN: Seb Abdullah
WMC Consulting Engineers
87 Holmes Road
Newington, CT 06111

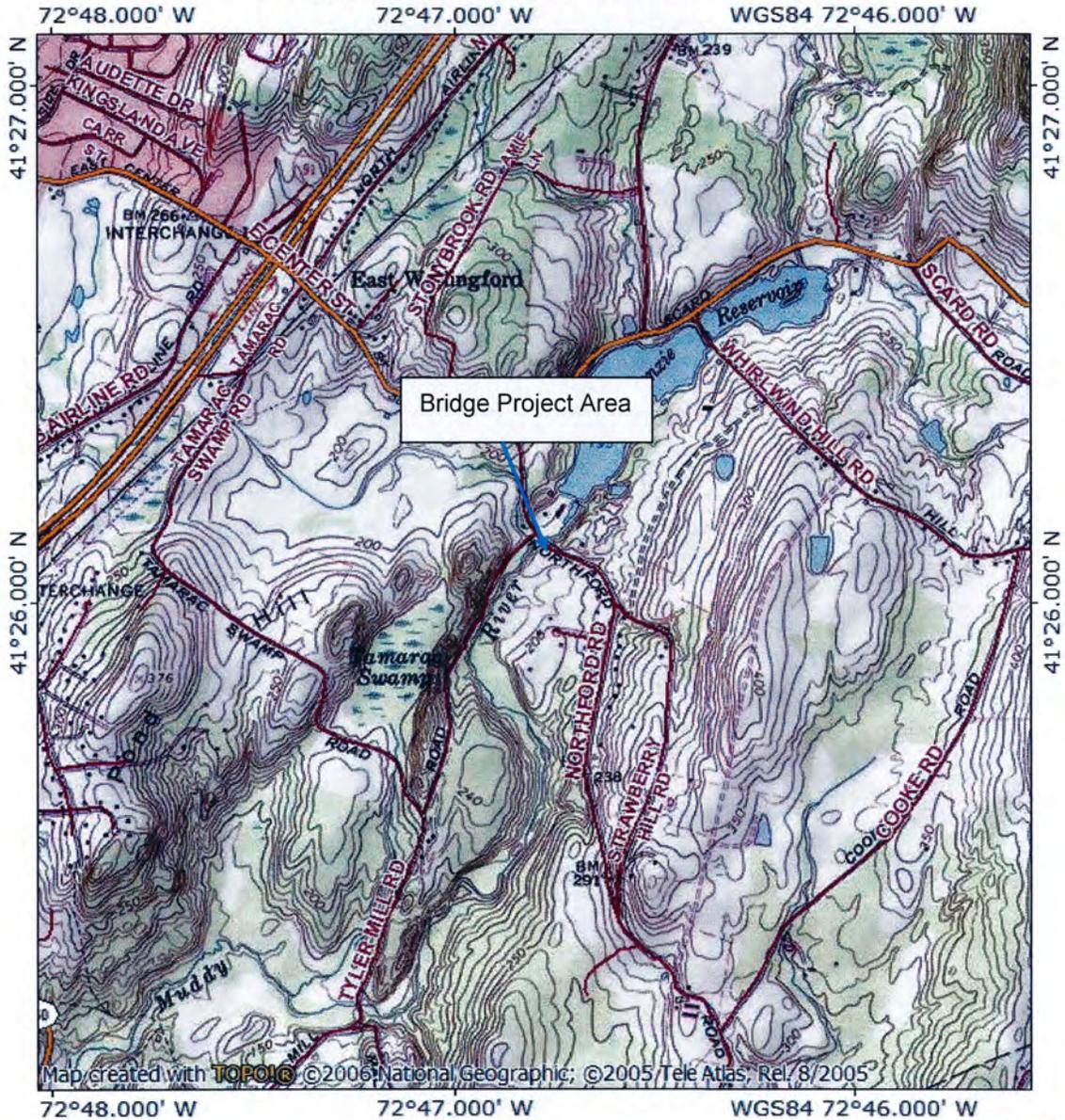
**Re: Wetlands Delineation Report
Northford Road Bridge Over Muddy Brook, Wallingford, CT
SS&ES Job No. 2016-72-CT-WAL**

Dear Mr. Abdullah:

In accordance with your request, Scott D. Stevens, Soil Scientist and Jennifer L. Beno, Biologist, with Soil Science And Environmental Services, Inc. (SSES) inspected the Northford Road bridge over Muddy Brook project area on September 14, 2016. The purpose of the inspection was to identify regulated wetlands and waters and ordinary high water in the vicinity of the bridge rehabilitation project area. The project area is situated in the southeastern portion of Wallingford (Figure 1).

Regulated waters and wetlands present in and near the project area include Muddy Brook and associated CT inland wetlands and Federal wetlands. Definitions of waters and wetlands that are regulated by the State of Connecticut and Federal Government are presented in Appendix I. Rivers and streams are regulated by the State of CT as watercourses, according to the Inland Wetlands and Watercourses Act. Rivers and streams are regulated by the Federal Government as "Waters of the U.S." Wetlands are defined differently by the State of CT and the Federal Government. CT Inland Wetlands are defined by soil types that are either poorly drained, very poorly drained, floodplain or alluvial. Federal Wetlands consist of areas that are inundated or saturated by ground or surface water at a frequency and duration sufficient to support, and that under normal conditions do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.

TOPO! map printed on 09/15/16 from "Untitled.tpo"



MN ↑ T
13½°
09/15/16

SOIL SCIENCE and ENVIRONMENTAL SERVICES, INC.

U.S.G.S. Topography Map
Northford Road bridge over
Muddy Brook, Wallingford, CT

Date 9/15/16

Figure No. 1

A spade and auger were used to dig test holes for soils identification during the investigation. The vegetation communities and any physical indicators of hydrology in the project area were also examined. The limits of the CT inland wetlands and the Federal wetlands were determined to differ within the limits of the project area. The CT inland wetland boundaries were delineated with consecutively numbered pink survey tapes, while Federal wetland boundaries were delineated with consecutively numbered orange survey tapes. Sketch maps of the delineated wetland boundaries are included as Figures 2 and 3.

CONNECTICUT INLAND WETLANDS & SOIL TYPES

CT inland wetlands were delineated within the project area approximately 50 feet up- and down-stream of the bridge along Muddy Brook and approximately 50 feet along Northford Road northwest and southeast of the bridge. See Figure 2.

The wetland soils within the project area include:

104 Bash silt loam (Fluvaqentic Dystrudepts) – This is a deep, somewhat poorly drained, friable, reddish colored, loamy textured soil that formed in alluvial sediments principally derived from sandstone, shale and basalt. Bash soils occur in nearly level floodplains and along rivers and streams which are subject to frequent flooding. This soil was formerly mapped in Connecticut as the Bowmansville and Rowland silt loams.

109 Fluvaquents-Udifulvents This soil map unit consists of well drained to very poorly drained, nearly level soils that formed in very recent alluvium deposited by rivers and streams. The soils are occasionally to frequently flooded, which often results in stream scouring, lateral erosion and shifting of soil from place to place. Soil characteristics, such as texture and stoniness, are usually highly variable within short distances.

The non-wetland soils within the project area include:

30 Branford silt loam (Typic Dystrudepts) – This is a deep, well drained, friable, reddish-colored, loamy textured soil that developed over sandy and gravelly, glacial outwash derived from sandstone, shale and basalt. Outwash soils occur in valleys, outwash plains and terraces.

37 Manchester gravelly sandy loam (Typic Udorthents) – This is a deep, excessively drained, reddish-colored, gravelly sandy textured soil that developed over sandy and gravelly, glacial outwash derived from sandstone, shale and basalt. Manchester soils occur in valleys, outwash plains, terraces, kames and eskers landforms.

308 Udorthents, smoothed This is a well drained to moderately well drained soil area that has had two or more feet of the original soil surface altered by filling, excavation or grading activities. Udorthents, smoothed soils commonly occur on leveled land and fill landforms.

Map

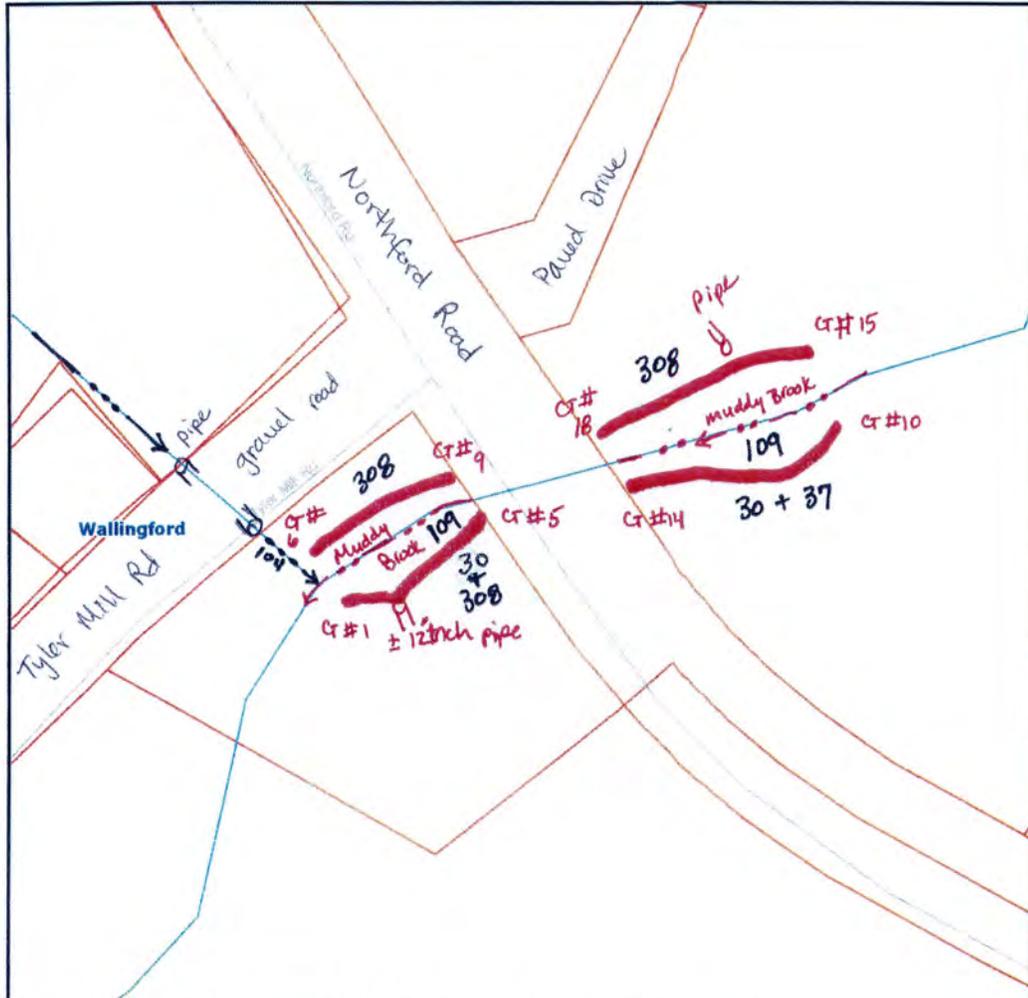


Figure No. 2 – Sketch of CT Wetland Locations (approximate)

FEDERAL WETLANDS

Federal wetlands were delineated within the project area. The Federal wetland boundary differs from the CT wetland boundary. See Figure 3. The Federal wetlands consist of a small shrub swamp community along Muddy Brook. One transect with two Federal wetland data plots was established (Data Plots 102-W and 102-U). The approximate location of the transect and data plots is shown in Figure 3. The information gathered from each data plot was recorded on Federal Wetland Data Sheets. These sheets are included with this report.



Federal Data Transect 102-W and 102-U (9/14/16).

Map

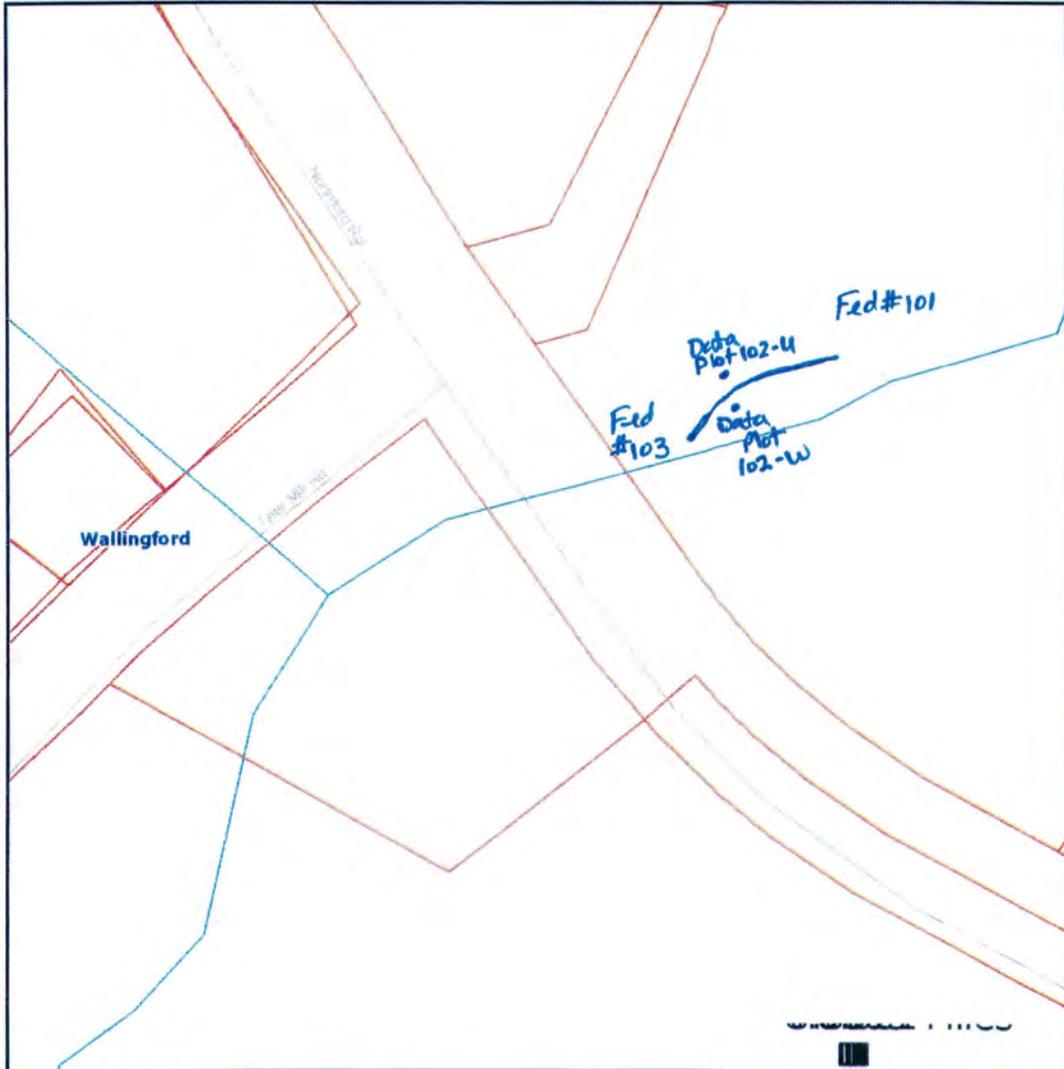


Figure No. 3 – Sketch of Federal Wetland Locations (approximate)

ORDINARY HIGH WATER MARK IDENTIFICATION

The lateral limits of U.S. Army Corps jurisdiction for non-tidal rivers, streams and water bodies extends to the ordinary high water mark (OHW), in the absence of adjacent wetlands. The Corps defines the term "ordinary high water mark" as the following: "means the line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." 33 CFR 328.3(e). The Corps recommends that whenever possible the investigator should consider the former indicators along with a number of others, that include: wracking; vegetation matted down, bent or absent; sediment sorting; leaf litter disturbed or washed away; scour; deposition; multiple observed flow events; beds and banks; water staining; and change in plant community.

The above-listed indicators were utilized during the September 14, 2016 investigation to determine the ordinary high water (OHW) along the Muddy Brook watercourse channel. Orange survey tapes were tied onto branches and plant stems at several locations upstream and downstream of the bridge along the river banks to identify the OHW elevation. The knot of the tied survey tape marks the OHW elevation. A sketch showing locations of the OHW boundary survey tapes is presented in Figure 4.

Respectfully submitted,

SOIL SCIENCE AND ENVIRONMENTAL SERVICES, INC.



Scott D. Stevens
Registered Professional Soil Scientist



Jennifer L. Beno
Biologist/Wetland Scientist

Map

Map

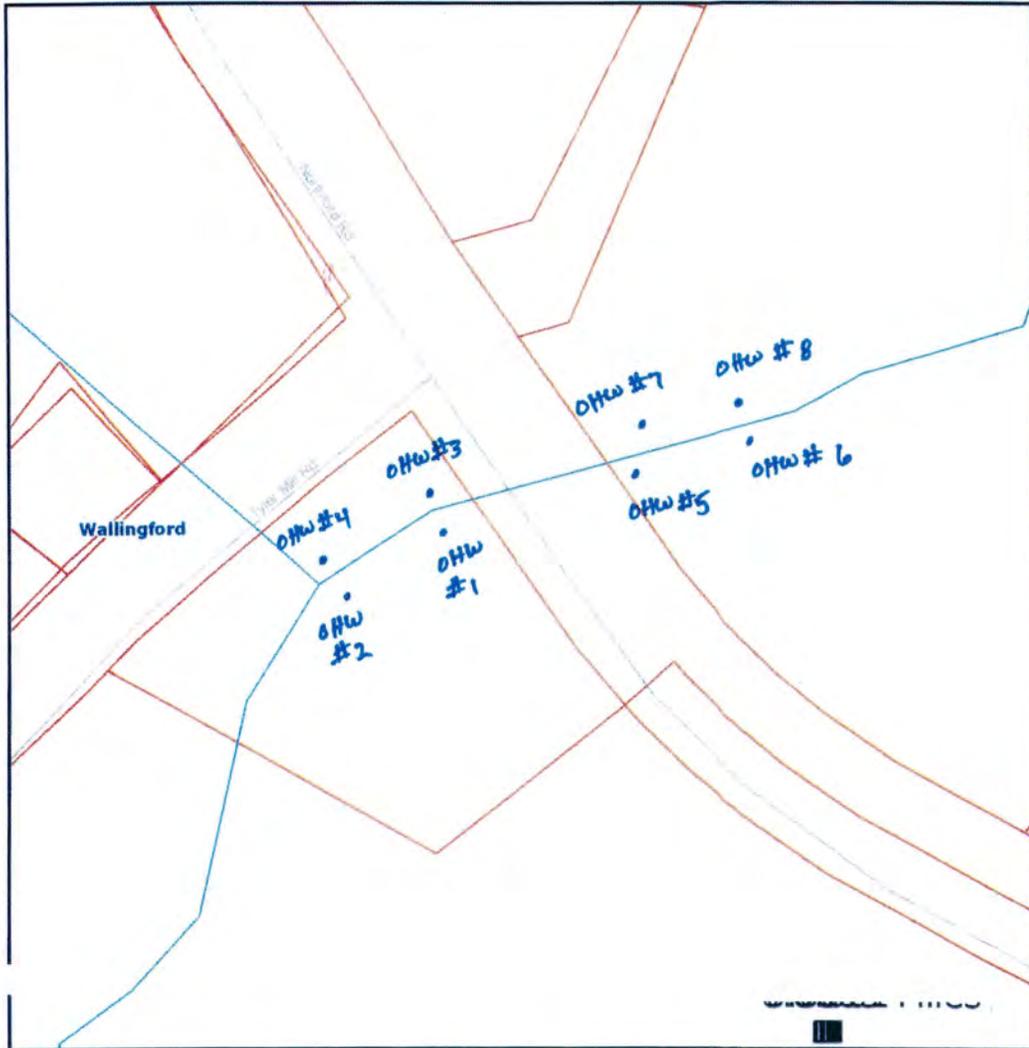


Figure No. 4 – Sketch of Ordinary High Water Locations (approximate)

APPENDIX I

REGULATED WATERS AND WETLANDS BY THE STATE OF CT AND FEDERAL GOVERNMENT

I. State of Connecticut

Wetlands and watercourses are regulated in the State of Connecticut by the Connecticut General Statutes, Chapter 440, section 22a-28 to 22a-45. These Statutes are divided into the Inland Wetlands and Watercourses Act (sections 22a-36 to 22a-45) and the Tidal Wetlands Act (sections 22a-28 to 22a-35). Definitions of the resources are provided in the statutes.

Inland Wetlands, "means land, including submerged land, not regulated pursuant to sections 22a-28 to 22a-35, inclusive, which consist of any of the soil types designated as poorly drained, very poorly drained, alluvial, and floodplain by the National Cooperative Soils Survey, as may be amended from time to time, of the Natural Resources Conservation Service of the United States Department of Agriculture" section 22a-38(15).

Watercourses "means rivers, streams, brooks, waterways, lakes, ponds, marshes, swamps, bogs and all other bodies of water, natural or artificial, vernal or intermittent, public or private which are contained within, flow through or border upon this state or any portion thereof, not regulated pursuant to sections 22a-28 to 22a-35, inclusive.

Intermittent watercourses shall be delineated by a defined permanent channel and bank and the occurrence of two or more of the following characteristics: (A) Evidence of scour or deposits of alluvium or detritus, (B) the presence of standing or flowing water for a duration longer than a particular storm incident, and (C) the presence of hydrophytic vegetation" section 22a-38(16).

Tidal Wetlands are defined as "those areas which border on or lie beneath tidal waters, such as, but not limited to banks, bogs, salt marsh, swamps, meadows, flats, or other low lands subject to tidal action, including those areas now or formerly connected to tidal waters, and whose surface is at or below an elevation of one foot above local extreme high water; and upon which may grow or be capable of growing some but not necessarily all, of the following:" (includes plant list) section 22a-29(2).

II. Federal Government

The Federal Government regulates waters and wetlands in accordance with the Code of Federal Regulations, Title 33, Parts 320 through 330 (33 CFR parts 320 to 330). Regulated areas include navigable waters; interstate waters; tributaries to navigable and interstate waters, including adjacent wetlands; and certain other waters and wetlands of the U.S. The United States Army Corps of Engineers has been authorized to regulate these waters and wetlands by Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act of 1899. Definitions of wetlands and watercourses that are regulated by the Corps are found in Parts 328 and 329 of the Code.

Waters of the United States as defined in Part 328 means, " (1) all waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; (4) all impoundments of waters otherwise defined as waters of the U.S. under the definition; (5) tributaries of waters indentified in 1 thru 4; (6) territorial seas; and (7) wetlands adjacent to waters that were identified in 1 thru 6. Waters of the United States do not include prior converted cropland" (33 CFR Part 328.3 (a)).

Wetlands are a subset of waters of the United States and are defined as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (33CFR Part 328.3(b)). The 1987 U.S. Corps of Engineers Delineation Manual and the Draft Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (dated July 2008) provide information and procedures for conducting Federal Wetland delineation. The methodology established by the Federal Government uses a three parameter approach utilizing hydrologic indicators, hydrophytic vegetation and hydric soils for identifying Federal Wetlands.

Navigable waters of the United States as defined in Part 329 mean "those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce" (33CFR Part 329.2).

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Northford Rd over Muddy Brook City/County: Wallingford / New Haven Sampling Date: Sept. 14, 2016
 Applicant/Owner: WMC Consulting Engineers / Town of Wallingford State: CT Sampling Point: 102-W
 Investigator(s): Scott Stewart + Jenn Beno - SSES Section, Township, Range: _____

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): _____
 Subregion (LRR or MLRA): LRR Lat: ± 41° 26' 07.69" N Long: ± 72° 46' 46.54" W Datum: _____

Soil Map Unit Name: Fluvaquents - udifluvents NWI classification: PSS1E

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) <input checked="" type="checkbox"/> High Water Table (A2) ___ Aquatic Fauna (B13) <input checked="" type="checkbox"/> Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
--	---

Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>± 3</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>± 0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
---	---

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: 102-W

Tree Stratum (Plot size: <u>±30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Acer rubrum</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>
2. <u>Acer saccharum</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>
3. <u>Quercus alba</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>
4. <u>Prunus serotina</u>	<u>10</u>	<u>N</u>	<u>FACU</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____

70% = Total Cover

Sapling/Shrub Stratum (Plot size: <u>±15'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Cornus amomum</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>
2. <u>Lindera benzoin</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>
3. <u>Berberis thunbergii</u>	<u>10</u>	<u>N</u>	<u>FACU</u>
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____

_____ = Total Cover

Herb Stratum (Plot size: <u>±5'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Impatiens capensis</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>
2. <u>Oxycoccus sensibilis</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>
3. _____	_____	_____	_____
4. _____	_____	_____	_____
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____

20% = Total Cover

Woody Vine Stratum (Plot size: <u>±30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. _____	_____	_____	_____
2. _____	_____	_____	_____
3. _____	_____	_____	_____
4. _____	_____	_____	_____

0% = Total Cover

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71% (A/B)

Prevalence Index worksheet:

Total % Cover of: _____ Multiply by: _____

OBL species _____ x 1 = _____

FACW species _____ x 2 = _____

FAC species _____ x 3 = _____

FACU species _____ x 4 = _____

UPL species _____ x 5 = _____

Column Totals: _____ (A) _____ (B)

Prevalence Index = B/A = _____

- Hydrophytic Vegetation Indicators:**
- 1 - Rapid Test for Hydrophytic Vegetation
 - 2 - Dominance Test is >50%
 - 3 - Prevalence Index is ≤3.0¹
 - 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 - Problematic Hydrophytic Vegetation¹ (Explain)
- ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Northford Rd over Muddy Brook City/County: Wallingford / New Haven Sampling Date: Sept. 14, 2016
 Applicant/Owner: WMC Consulting Engineers / Town of Wallingford State: CT Sampling Point: 102-11
 Investigator(s): Scott Stevens + Jenn Beno - SSES Section, Township, Range: _____
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): _____
 Subregion (LRR or MLRA): LRR Lat: ± 41° 26' 07.73" N Long: ± 72° 46' 46.57" W Datum: _____
 Soil Map Unit Name: Udorthents, smoothed NWI classification: NIA
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _____ (If no, explain in Remarks.)
 Are Vegetation _____, Soil , or Hydrology _____ significantly disturbed? yes Are "Normal Circumstances" present? Yes _____ No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ Water-Stained Leaves (B9) ___ High Water Table (A2) ___ Aquatic Fauna (B13) ___ Saturation (A3) ___ Marl Deposits (B15) ___ Water Marks (B1) ___ Hydrogen Sulfide Odor (C1) ___ Sediment Deposits (B2) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Drift Deposits (B3) ___ Presence of Reduced Iron (C4) ___ Algal Mat or Crust (B4) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Iron Deposits (B5) ___ Thin Muck Surface (C7) ___ Inundation Visible on Aerial Imagery (B7) ___ Other (Explain in Remarks) ___ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks:	

VEGETATION – Use scientific names of plants.

Sampling Point: 102-U

Tree Stratum (Plot size: <u>±30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Acer negundo</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>43%</u> (A/B)
2. <u>Acer rubrum</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Acer saccharum</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Pinus serotina</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>80%</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>±15'</u>)				
1. <u>Berberis thunbergii</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Cornus amomum</u>	<u>20</u>	<u>N</u>	<u>FACW</u>	
3. <u>Lindera benzoin</u>	<u>20</u>	<u>N</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
<u>90%</u> = Total Cover				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum (Plot size: <u>±5'</u>)				
1. <u>Parthenocissus quinquefolia</u>	<u>10</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Oxoclea sensibilis</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. <u>Toxicodendron radicans</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
<u>20%</u> = Total Cover				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.
Woody Vine Stratum (Plot size: <u>±30'</u>)				
1. <u>Toxicodendron radicans</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>5%</u> = Total Cover				
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>				
Remarks: (Include photo numbers here or on a separate sheet.)				

Natural Diversity Data Base Areas

WALLINGFORD, CT

June 2020

-  State and Federal Listed Species
-  Critical Habitat
-  Town Boundary

NOTE: This map shows general locations of State and Federal Listed Species and Critical Habitats. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDDB) from a variety of data sources. Exact locations of species have been buffered to produce the generalized locations.

This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas. If the project is within a hatched area there may be a potential conflict with a listed species. For more information, complete a Request for Natural Diversity Data Base State Listed Species Review form (DEP-APP-007), and submit it to the NDDDB along with the required maps and information. More detailed instructions are provided with the request form on our website.

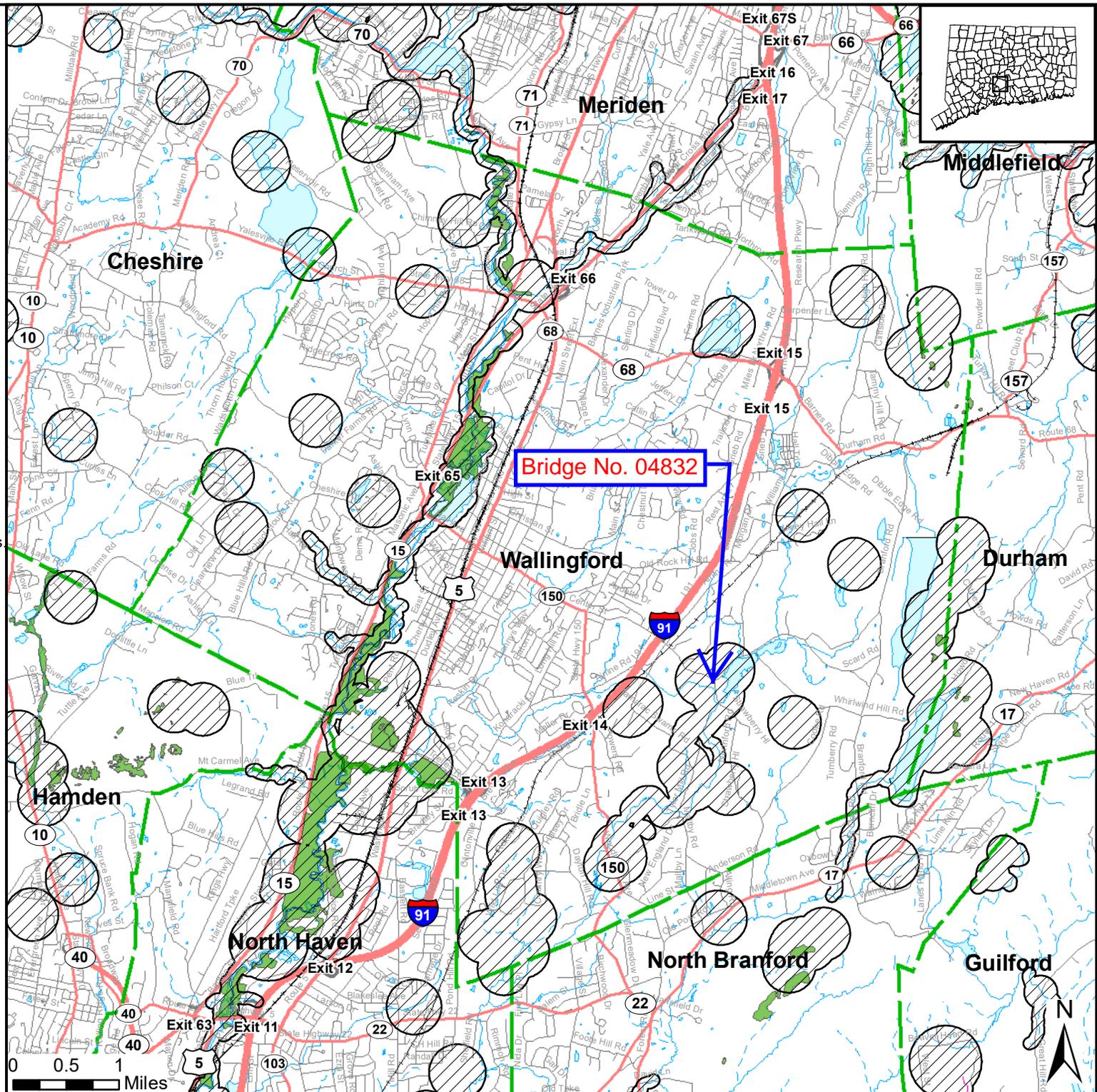
www.ct.gov/deep/nddbrequest

Use the CTECO Interactive Map Viewers at <http://cteco.uconn.edu> to more precisely search for and locate a site and to view aerial imagery with NDDDB Areas.

QUESTIONS: Department of Energy and Environmental Protection (DEEP)
79 Elm St, Hartford, CT 06106
email: deep.nddbrequest@ct.gov
Phone: (860) 424-3011



Connecticut Department of Energy & Environmental Protection
Bureau of Natural Resources
Wildlife Division





Connecticut Department of
**ENERGY &
ENVIRONMENTAL
PROTECTION**

August 4, 2017

Mr. Jay A. Costello
WMC Consulting Engineers, Inc.
87 Holmes Road
Newington, CT 06111
jcostello@wmcengineers.com

Project: Replacement of Northford Road Bridge over Muddy River in Wallingford, Connecticut
NDDDB Determination No.: 201705820

Dear Jay A. Costello,

I have reviewed Natural Diversity Data Base maps and files regarding the area delineated on the map you provided for the proposed Replacement of Northford Road Bridge over Muddy River in Wallingford, Connecticut. According to our records we have known extant populations of State Special Concern *Terrapene carolina* (eastern box turtle) and *Glyptemys insculpta* (wood turtle) in the vicinity of the project site.

Eastern Box Turtle: Eastern box turtles inhabit old fields and deciduous forests, which can include power lines and logged woodlands. They are often found near small streams and ponds. The adults are completely terrestrial but the young may be semiaquatic, and hibernate on land by digging down in the soil from October to April. They have an extremely small home range and can usually be found in the same area year after year. Eastern box turtles have been negatively impacted by the loss of suitable habitat. Some turtles may be killed directly by construction activities, but many more are lost when important habitat areas for shelter, feeding, hibernation, or nesting are destroyed. As remaining habitat is fragmented into smaller pieces, turtle populations can become small and isolated. Reducing the frequency that motorized vehicles enter box turtle habitat would be beneficial in minimizing direct mortality of adults.

Wood turtle: Wood turtles require riparian habitats bordered by floodplain, woodland or meadows. They hibernate in the banks of the river in submerged tree roots. Their summer habitat includes pastures, old fields, woodlands, powerline cuts and railroad beds bordering or adjacent to streams and rivers. This species has been negatively impacted by the loss of suitable habitat.

Recommended Protection Strategies for Turtles:

Work should occur when these turtles are active (April 1st to September 30th). Conducting land clearing while the turtle is active will allow the animal to move out of harm's way and minimize mortality to hibernating individuals. I recommend the additional following protection strategies in order to protect these turtles:

- Hire a qualified herpetologist to be on site to ensure these protection guidelines remain in effect and prevent turtles from being run over when moving heavy equipment. This is especially important in the month of June when turtles are selecting nesting sites.
- Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance.
- Exclusionary fencing must be at least 20 in tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through. Do not use plastic or netted silt-fence.
- All staging and storage areas, outside of previously paved locations, regardless of the duration of time they will be utilized, must be reviewed to remove individuals and exclude them from re-entry.

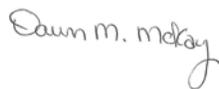
- All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species, and instructed to relocate turtles found inside work areas or notify the appropriate authorities to relocate individuals.
- Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove access point.
- In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.
- No heavy machinery or vehicles may be parked in any turtle habitat.
- Special precautions must be taken to avoid degradation of wetland habitats including any wet meadows and seasonal pools.
- The Contractor and consulting herpetologist must search the work area each morning prior to any work being done.
- When felling trees adjacent to brooks and streams please cut them to fall away from the waterway and do not drag trees across the waterway or remove stumps from banks.
- Avoid and limit any equipment use within 50 feet of streams and brooks.
- Any confirmed sightings of box, wood or spotted turtles should be reported and documented with the NDDDB (nddbrequestdep@ct.gov) on the appropriate special animal form found at (http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav_GID=1641)

If these protection strategies are followed then the proposed activities will lessen the impact on these two state-listed species. This determination is good for two years. Please re-submit an NDDDB Request for Review if the scope of work changes or if work has not begun on this project by August 4, 2019.

Natural Diversity Data Base information includes all information regarding critical biological resources available to us at the time of the request. This information is a compilation of data collected over the years by the Department of Energy and Environmental Protection's Natural History Survey and cooperating units of DEEP, private conservation groups and the scientific community. This information is not necessarily the result of comprehensive or site-specific field investigations. Consultations with the Data Base should not be substitutes for on-site surveys required for environmental assessments. Current research projects and new contributors continue to identify additional populations of species and locations of habitats of concern, as well as, enhance existing data. Such new information is incorporated into the Data Base as it becomes available.

Please contact me if you have further questions at (860) 424-3592, or dawn.mckay@ct.gov . Thank you for consulting the Natural Diversity Data Base. A more detailed review may be conducted as part of any subsequent environmental permit applications submitted to DEEP for the proposed site.

Sincerely,



Dawn M. McKay
Environmental Analyst 3

SECTION 1.10 – ENVIRONMENTAL COMPLIANCE

In Article 1.10.03 – Water Pollution Control:

BEST MANAGEMENT PRACTICES

Add the following after Required Best Management Practices Number 13:

14. The Contractor is hereby notified that there are known extant populations of State listed species of Special Concern eastern box turtle (*Terrapene carolina*) and wood turtle (*Glyptemys insculpta*) in the vicinity of the project site:

Eastern Box Turtle: Eastern box turtles inhabit old fields and deciduous forests, which can include power lines and logged woodlands. They are often found near small streams and ponds. The adults are completely terrestrial but the young may be semiaquatic, and hibernate on land by digging down in the soil from October to April. They have an extremely small home range and can usually be found in the same area year after year. Eastern box turtles have been negatively impacted by the loss of suitable habitat. Some turtles may be killed directly by construction activities, but many more are lost when important habitat areas for shelter, feeding, hibernation, or nesting are destroyed. As remaining habitat is fragmented into smaller pieces, turtle populations can become small and isolated. Reducing the frequency that motorized vehicles enter box turtle habitat would be beneficial in minimizing direct mortality of adults. See attached fact sheet.

Wood Turtle: Wood turtles require riparian habitats bordered by floodplain, woodland or meadows. They hibernate in the banks of the river in submerged tree roots. Their summer habitat includes pastures, old fields, woodlands, powerline cuts and railroad beds bordering or adjacent to streams and rivers. This species has been negatively impacted by the loss of suitable habitat. See attached fact sheet.

Recommended Protection Strategies for Turtles:

Work should occur when these turtles are active (April 1st to September 30th). Conducting land clearing while the turtle is active will allow the animal to move out of harm's way and minimize mortality to hibernating individuals. The following additional protection strategies are also to be followed:

- a. Hire a qualified herpetologist to inspect the site for turtles just prior to starting construction activities and review with the Contractor and Project Engineer the protection strategies to be implemented to prevent turtles from being run over when moving heavy equipment. This is especially important in the month of June when turtles are selecting nesting sites. Prior to the commencement of any construction field work, the herpetologist shall review with the Contractor's supervisors and field personnel the appropriate protection strategies that shall be utilized throughout the duration of the project.

SECTION 1.10 – ENVIRONMENTAL COMPLIANCE

- b. Exclusionary practices will be required to prevent any turtle access into construction areas. These measures will need to be installed at the limits of disturbance.
- c. Exclusionary fencing must be at least 20 in tall and must be secured to and remain in contact with the ground and be regularly maintained (at least bi-weekly and after major weather events) to secure any gaps or openings at ground level that may let animal pass through. Do not use plastic or netted silt-fence.
- d. All staging and storage areas, outside of previously paved locations, regardless of the duration of time they will be utilized, must be reviewed to remove individuals and exclude them from re-entry.
- e. All construction personnel working within the turtle habitat must be apprised of the species description and the possible presence of a listed species, and instructed to relocate turtles found inside work areas or notify the appropriate authorities to relocate individuals.
- f. Any turtles encountered within the immediate work area shall be carefully moved to an adjacent area outside of the excluded area and fencing should be inspected to identify and remove access point.
- g. In areas where silt fence is used for exclusion, it shall be removed as soon as the area is stable to allow for reptile and amphibian passage to resume.
- h. No heavy machinery or vehicles may be parked in any turtle habitat.
- i. Special precautions must be taken to avoid degradation of wetland habitats including any wet meadows and seasonal pools.
- j. The Contractor must search the work area each morning prior to any work being done.
- k. When felling trees adjacent to brooks and streams, cut them to fall away from the waterway and do not drag trees across the waterway or remove stumps from banks.
- l. Avoid and limit any equipment use within 50 feet of streams and brooks.
- m. Any confirmed sightings of box, wood or spotted turtles should be reported and documented with the NDDDB (nddbrequestdep@ct.gov) on the appropriate special animal form found at (http://www.ct.gov/deep/cwp/view.asp?a=2702&q=323460&depNav_GID=1641).

If these protection strategies are followed then the proposed activities will lessen the impact on these two state-listed species. These species are protected by state laws which prohibit killing, harming, taking, or keeping them in your possession. Workers shall be notified of the existence of eastern box turtles and wood turtles in this area and be apprised of the laws protecting them. Photographs and the laws protecting these shall be posted in the Contractor's field office. Any observations of this species are to be immediately reported to DEEP-Wildlife at 860-424-3011.

WILDLIFE IN CONNECTICUT

STATE SPECIES OF SPECIAL CONCERN

Eastern Box Turtle

Terrapene carolina carolina

Description

The eastern box turtle is probably the most familiar of the 8 species of turtles found in Connecticut's landscape. It is known for its high-domed carapace (top shell). The carapace has irregular yellow or orange blotches on a brown to black background that mimic sunlight dappling on the forest floor. The plastron (under shell) may be brown or black and may have an irregular pattern of cream or yellow. The length of the carapace usually ranges from 4.5 to 6.5 inches, but can measure up to 8 inches long. The shell is made up of a combination of scales and bones, and it includes the ribs and much of the backbone.

Each individual turtle has distinctive head markings. Males usually have red eyes and a concave plastron, while females have brown eyes and a flat plastron. Box turtles also have a horny beak, stout limbs, and feet that are webbed at the base. This turtle gets its name from its ability to completely withdraw into its shell, closing itself in with a hinged plastron. Box turtles are the only Connecticut turtle with this ability.

Range

Eastern box turtles are found throughout Connecticut, except at the highest elevations. They range from southeastern Maine to southeastern New York, west to central Illinois, and south to northern Florida.

Habitat and Diet

In Connecticut, this terrestrial turtle inhabits a variety of habitats, including woodlands, field edges, thickets, marshes, bogs, and stream banks. Typically, however, box turtles are found in well-drained forest bottomlands and open deciduous forests. They will use wetland areas at various times during the season. During the hottest part of a summer day, they will wander to find springs and seepages where they can burrow into the moist soil. Activity is restricted to mornings and evenings during summer, with little to no nighttime activity, except for egg-



laying females. Box turtles have a limited home range where they spend their entire life, ranging from 0.5 to 10 acres (usually less than 2 acres).

Box turtles are omnivorous and will feed on a variety of food items, including earthworms, slugs, snails, insects, frogs, toads, small snakes, carrion, leaves, grass, berries, fruits, and fungi.

Life History

From October to April, box turtles hibernate by burrowing into loose soil, decaying vegetation, and mud. They tend to hibernate in woodlands, on the edge of woodlands, and sometimes near closed canopy wetlands in the forest. Box turtles may return to the same place to hibernate year after year. As soon as they come out of hibernation, box turtles begin feeding and searching for mates.

The breeding season begins in April and may continue through fall. Box turtles usually do not breed until they are about 10 years old. This late maturity is a result of their long lifespan, which can range up to 50 to even over 100 years of age. The females do not have to mate every year to lay eggs as they can store sperm for up

to 4 years. In mid-May to late June, the females will travel from a few feet to more than a mile within their home range to find a location to dig a nest and lay their eggs. The 3 to 8 eggs are covered with dirt and left to be warmed by the sun. During this vulnerable time, skunks, foxes, snakes, crows, and raccoons often raid nests. Sometimes, entire nests are destroyed. If the eggs survive, they will hatch in late summer to early fall (about 2 months after being laid). If they hatch in the fall, the young turtles may spend the winter in the nest and come out the following spring.

As soon as the young turtles hatch, they are on their own and receive no care from the adults. This is a dangerous time for young box turtles because they do not develop the hinge for closing into their shell until they are about 4 to 5 years old. Until then, they cannot entirely retreat into their shells. Raccoons, skunks, foxes, dogs, and some birds will prey on young turtles.

Conservation Concerns

The eastern box turtle was once common throughout the state, mostly in the central Connecticut lowlands. However, its distribution is now spotty, although where found, turtles may be locally abundant. Because of the population decline in Connecticut, the box turtle was added to the state's List of Endangered, Threatened, and Special Concern Species when it was revised in 1998. It is currently listed as a species of special concern. The box turtle also is protected from international trade by the 1994 CITES treaty. It is of conservation concern in all the states where it occurs at its northeastern range limit, which includes southern New England and southeastern New York.

Many states have laws that protect box turtles and prohibit their collection. In Connecticut, eastern box turtles **cannot** be collected from the wild (DEP regulations 26-66-14A). Another regulation (DEP regulations 26-55-3D) "grandfathers" those who have a **box turtle collected before 1998**. This regulation limits possession to a single turtle collected before 1998. These

regulations provide some protection for the turtles, but not enough to combat some of the even bigger threats these animals face. The main threats in Connecticut (and other states) are loss and fragmentation of habitat due to deforestation and spreading suburban development; vehicle strikes on the busy roads that bisect the landscape; and indiscriminate (and now illegal) collection of individuals for pets.

Loss of habitat is probably the greatest threat to turtles. Some turtles may be killed directly by construction activities, but many more are lost when important habitat areas for shelter, feeding, hibernation, or nesting are destroyed. As remaining habitat is fragmented into smaller pieces, turtle populations can become small and isolated.

Adult box turtles are relatively free from predators due to their unique shells. The shell of a box turtle is extremely hard. However, the shell is not hard enough to survive being run over by a vehicle. Roads bisecting turtle habitat can seriously deplete the local population. Most vehicle fatalities are pregnant females searching for a nest site.

How You Can Help

- *Leave turtles in the wild. They should never be kept as pets. Whether collected singly or for the pet trade, turtles that are removed from the wild are no longer able to be a reproducing member of a population. Every turtle removed reduces the ability of the population to maintain itself.*
- *Never release a captive turtle into the wild. It probably would not survive, may not be native to the area, and could introduce diseases to wild populations.*
- *Do not disturb turtles nesting in yards or gardens.*
- *As you drive, watch out for turtles crossing the road. Turtles found crossing roads in June and July are often pregnant females and they should be helped on their way and not collected. Without creating a traffic hazard or compromising safety, drivers are encouraged to avoid running over turtles that are crossing roads. Also, still keeping safety precautions in mind, you may elect to pick up turtles from the road and move them onto the side they are headed. Never relocate a turtle to another area that is far from where you found it.*
- *Learn more about turtles and their conservation concerns. Spread the word to others on how they can help Connecticut's box turtle population.*



State of Connecticut
Department of Environmental Protection
Bureau of Natural Resources
Wildlife Division
www.ct.gov/dep



The production of this Endangered and Threatened Species Fact Sheet is made possible by donations to the Connecticut Endangered Species/Wildlife Income Tax Checkoff Fund.

WILDLIFE IN CONNECTICUT

STATE SPECIES OF SPECIAL CONCERN

Wood Turtle

Glyptemys insculpta

Background

Wood turtles may be found throughout Connecticut, but they have become increasingly rare due to their complex habitat needs. Wood turtles also have become more scarce in Fairfield County due to the fragmentation of suitable habitat by urban development.

Range

Wood turtles can be found across the northeastern United States into parts of Canada. They range from Nova Scotia through New England, south into northern Virginia, and west through the Great Lakes region into Minnesota.

Description

The scientific name of the wood turtle, *Glyptemys insculpta*, refers to the deeply sculptured or chiseled pattern found on the carapace (top shell). This part of the shell is dark brown or black and may have an array of faint yellow lines radiating from the center of each chiseled, pyramid-like segment due to tannins and minerals accumulating between ridges. These segments of the carapace, as well as those of the plastron (bottom shell), are called scutes. The carapace also is keeled, with a noticeable ridge running from front to back. The plastron is yellow with large dark blotches in the outer corners of each scute. The black or dark brown head and upper limbs are contrasted by brighter pigments ranging from red and orange to a pale yellow on the throat and limb undersides. Orange hues are most typical for New England's wood turtles. The hind feet are only slightly webbed, and the tail is long and thick at the base. Adults weigh approximately 1.5 to 2.5 pounds and reach a length of 5 to 9 inches.



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Habitat and Diet

Wood turtles use aquatic and terrestrial habitats at different times of the year. Their habitats include rivers and large streams, riparian forests (adjacent to rivers), wetlands, hayfields, and other early successional habitats. Terrestrial habitat that is usually within 1,000 feet of a suitable stream or river is most likely used. Preferred stream conditions include moderate flow, sandy or gravelly bottoms, and muddy banks.

Wood turtles are omnivorous and opportunistic. They are not picky eaters and will readily consume slugs, worms, tadpoles, insects, algae, wild fruits, leaves, grass, moss, and carrion.

Life History

From late spring to early fall, wood turtles can be found roaming their aquatic or terrestrial habitats. However, once temperatures drop in autumn, the turtles retreat to rivers and large streams for hibernation. The winter

is spent underwater, often tucked away below undercut riverbanks within exposed tree roots. Dissolved oxygen is extracted from the water, allowing the turtle to remain submerged entirely until the arrival of spring. Once warmer weather sets in, the turtles will become increasingly more active, eventually leaving the water to begin foraging for food and searching for mates. Travel up or down stream is most likely, as turtles seldom stray very far from their riparian habitats.

Females nest in spring to early summer, depositing anywhere from 4 to 12 eggs into a nest dug out of soft soil, typically in sandy deposits along stream banks or other areas of loose soil. The eggs hatch in late summer or fall and the young turtles may either emerge or remain in the nest for winter hibernation. As soon as the young turtles hatch, they are on their own and receive no care from the adults.

Turtle eggs and hatchlings are heavily preyed upon by a wide variety of predators, ranging from raccoons to birds and snakes. High rates of nest predation and hatchling mortality, paired with the lengthy amount of time it takes for wood turtles to reach sexual maturity, present a challenge to maintaining sustainable populations. Wood turtles live upwards of 40 to 60 years, possibly more.

Conservation Concerns

Loss and fragmentation of habitat are the greatest threats to wood turtles. Many remaining populations in Connecticut are low in numbers and isolated from one another by human-dominated landscapes. Turtles forced to venture farther and farther from appropriate habitat

to find mates and nesting sites are more likely to be run over by cars, attacked by predators, or collected by people as pets.

Other sources of mortality include entanglements in litter and debris left behind by people, as well as strikes from mowing equipment used to maintain hayfields and other early successional habitats.

The wood turtle is imperiled throughout a large portion of its range and was placed under international trade regulatory protection through the Convention on International Trade in Endangered Species (CITES) in 1992. Wood turtles also have been included on the International Union for Conservation of Nature's (IUCN) Red List as a vulnerable species since 1996. They are listed as a species of special concern in Connecticut and protected by the Connecticut Endangered Species Act.

How You Can Help

- *Conserve riparian habitat. Maintaining a buffer strip of natural vegetation (minimum of 100 feet) along the banks of streams and rivers will protect wood turtle habitat and also help improve the water quality of the stream system. Stream banks that are manicured (cleared of natural shrubby and herbaceous vegetation) or armored by rip rap or stone walls will not be used by wood turtles or most other wildlife species.*
- *Do not litter. Wood turtles and other wildlife may accidentally ingest or become entangled in garbage and die.*
- *Leave turtles in the wild. They should never be kept as pets. Whether collected singly or for the pet trade, turtles that are removed from the wild are no longer able to be a reproducing member of a population. Every turtle removed reduces the ability of the population to maintain itself.*
- *Never release a captive turtle into the wild. It probably would not survive, may not be native to the area, and could introduce diseases to wild populations.*
- *As you drive, watch out for turtles crossing the road. Turtles found crossing roads in June and July are often pregnant females. They should **not** be collected but can be helped on their way. Without creating a traffic hazard or compromising safety, drivers are encouraged to avoid running over turtles that are crossing roads. Also, still keeping safety precautions in mind, you may elect to pick up turtles from the road and move them onto the side in the direction they are headed. Never relocate a turtle to another area that is far from where you found it.*
- *Learn more about turtles and their conservation concerns, and educate others.*
- *If you see a wood turtle, leave it in the wild, take a photograph, record the location where it was seen, and contact the Connecticut Department of Environmental Protection (DEP) Wildlife Division at dep.wildlife@ct.gov, or call 860-424-3011 to report your observation.*



AQUIFER PROTECTION AREAS

Wallingford, CT
August 26, 2019

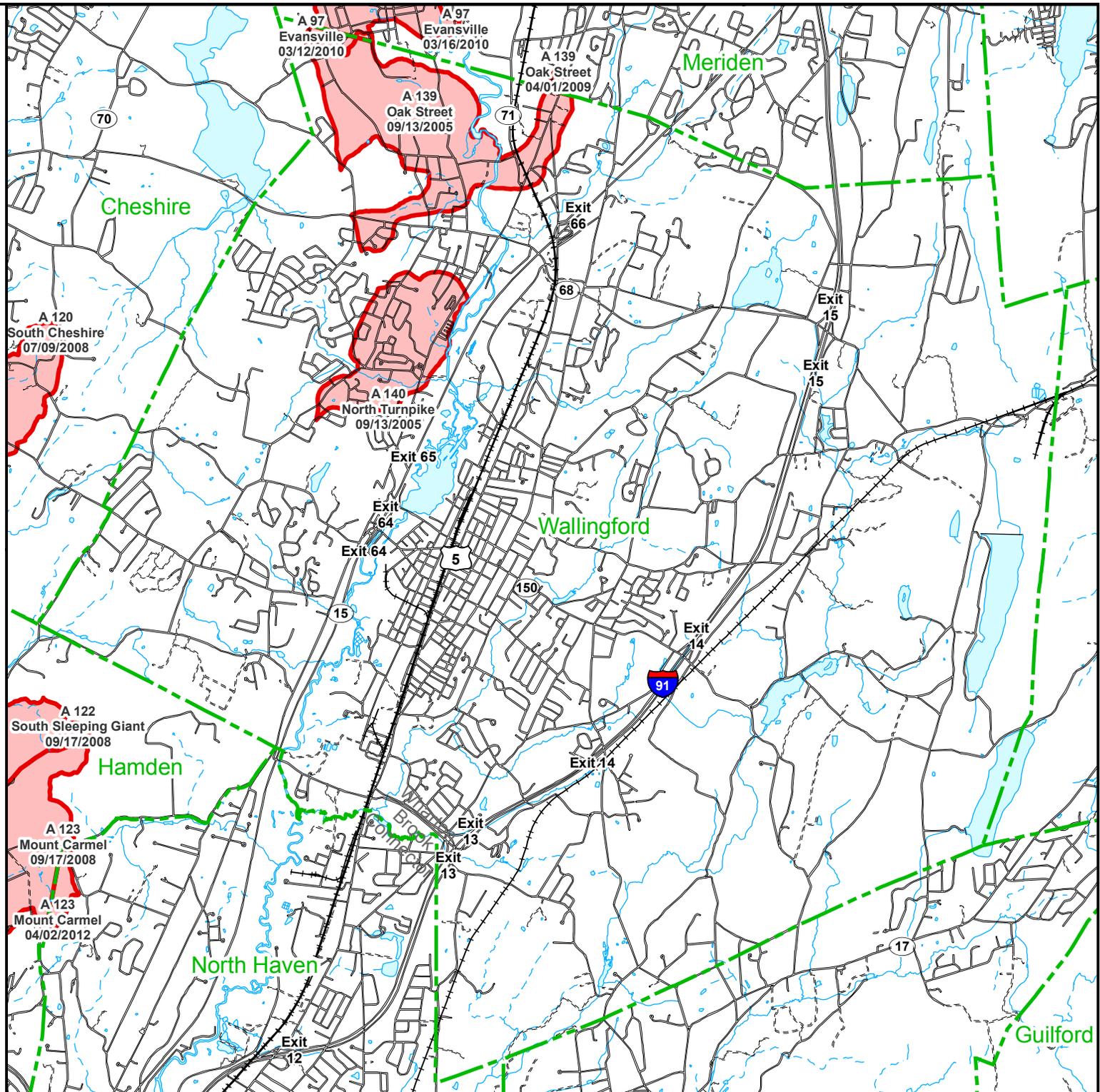
-  Level A APA (Final Adopted)
-  Level A APA (Final)
-  Level B APA (Preliminary)
-  Town Boundary

NOTE: The Aquifer Protection Areas were delineated through Connecticut's Level A and Level B Mapping Processes. Aquifer Protection Areas are delineated for active public water supply wells in stratified drift that serve more than 1000 people, in accordance with Sections 22a-354c and 22a-354z of the Connecticut General Statutes. Level B Mapping delineates a preliminary aquifer protection area, providing an estimate of the land area from which the well draws its water. Level A Mapping delineates the final Aquifer Protection Area, which becomes the regulatory boundary for land use controls designed to protect the well from contamination. As Level A Mapping is completed for each well field and approved by DEEP, it replaces the Level B Mapping. Final Adopted Level A Areas are those where towns have land use regulations for them. Massachusetts and Rhode Island Wellhead Protection Areas may be shown for informational purposes.

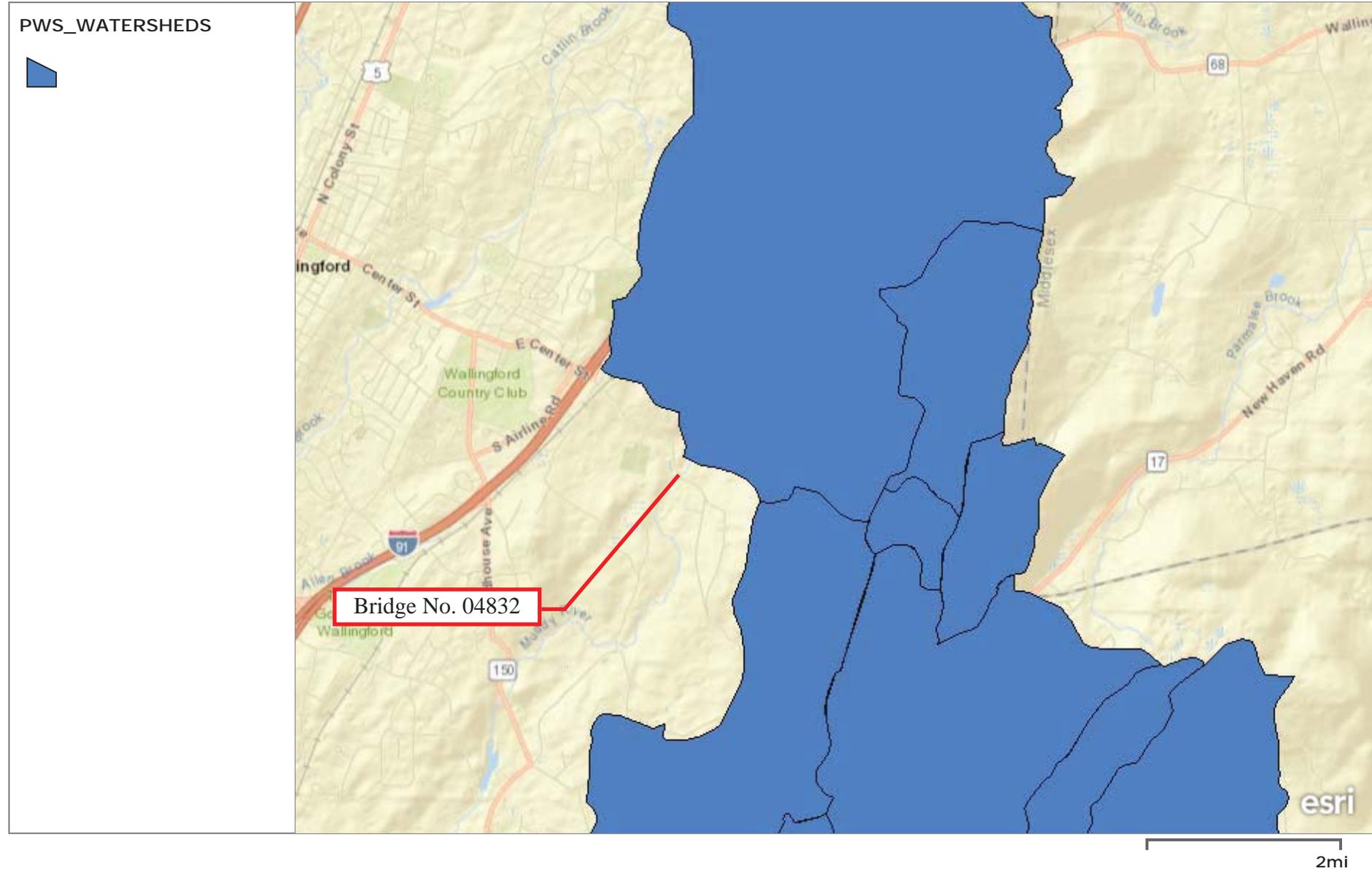
QUESTIONS:
Bureau of Water Protection and Land Reuse
Planning and Standards Division
Phone: (860) 424-3020
www.ct.gov/deep/aquiferprotection



STATE OF CONNECTICUT
DEPARTMENT OF
ENERGY & ENVIRONMENTAL PROTECTION
79 Elm Street
Hartford, CT 06106-5127



Public Water Supply Watersheds

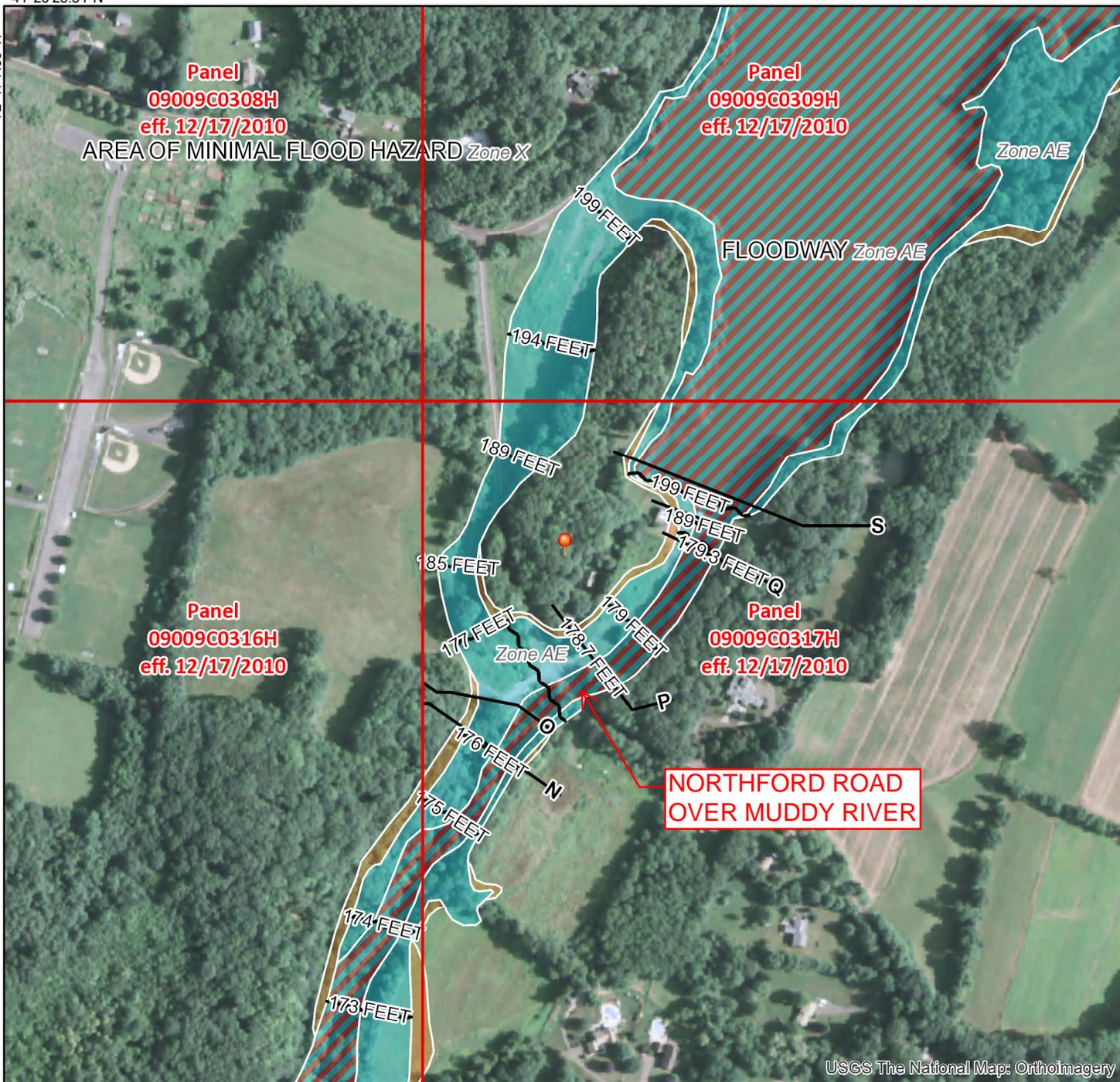


Esri, HERE, Garmin, INCREMENT P, NGA, USGS

National Flood Hazard Layer FIRMette

41°26'25.31"N

72°47'09"W



Legend

- Cross-Sections
- Base Flood Elevations
- Flood Hazard Zones**
 - 1% Annual Chance Flood
 - Regulatory Floodway
 - Special Floodway
 - Area of Undetermined Flood Hazard
 - 0.2% Annual Chance Flood
 - Future Conditions 1% Annual Chance Flood Hazard
 - Area with Reduced Risk Due to Levee
- LOMRs**
 - Effective
- Map Panels**
 - Digital Data
 - Unmodernized Maps
 - Unmapped



This map complies with FEMA's standards for the use of digital flood maps. The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. The base map shown complies with FEMA's base map accuracy standards.

The NFHL is a living database, updated daily, and this map represents a snapshot of information at a specific time.

Flood risks are dynamic and can change frequently due to a variety of factors, including weather patterns, erosion, and new development. FEMA flood maps are continually updated through a variety of processes. Users should always verify through the Map Service Center (<http://msc.fema.gov>) or the Community Map Repository that they have the current effective information.

NFHL maps should not be created for unmapped or unmodernized areas.



FEMA



**Connecticut Department of
Energy & Environmental Protection**
Bureau of Natural Resources
Fisheries Division

DEEP Fisheries Consultation Form

To the Applicant - Prior to the submission of your license application to the Connecticut Department of Energy & Environmental Protection (DEEP) Water Planning and Management Division (WPMD) or Land and Water Resources Division (LWRD), please complete Part I below and e-mail the following to deep.inland.fisheries@ct.gov:

1. this completed DEEP *Fisheries Consultation Form*;
2. a site location map,
3. a PDF version of the proposed project plans including a site survey of existing conditions (if available), and
4. photos of the site.

Fisheries Division staff will contact you if further details are needed. Once the Fisheries Division staff returns the completed form to you, please include the form, and any signed plans (if applicable) in your license application submittal to DEEP.

Part I: Applicant and Site Information (to be completed by APPLICANT)

1. Applicant/Registrant Information

Name: Wallingford
 Mailing Address: 45 South Main Street
 City/Town: Wallingford State: CT Zip Code: 06492
 Business Phone: 203-294-2035 Ext.: _____
 Contact Person: Alison Kapushinski, P.E. Phone: 203-294-2035 Ext: _____
 E-mail Address: a.kapushinski@wallingfordct.gov

2. Engineer/Surveyor/Agent Information (list as applicable)

Name: WMC Consulting Engineers
 Mailing Address: 87 Holmes Road
 City/Town: Newington State: CT Zip Code: 06111
 Business Phone: 860-667-9624 Ext.: _____
 Contact Person: John Wengell Phone: 860-667-9624 Ext: _____
 E-mail Address: jawengell@wmcengineers.com
 Service Provided: Engineering

3. Site Location:

Name of Site: Northford Road over Muddy River
 Address of Site or Location Description: Northford Rd. at intersection with Tyler Mill Road
 City/Town: Wallingford State: CT Zip Code: 06492
 Parcel Location/Tax Assessor's Reference: Map NA Block NA Lot NA
 Name of Stream or Waterbody: Muddy River

4. Activity: Check the box best describing your activity: (check all that apply):

- new public/fishing access;
- new docks and marinas on the Connecticut River;
- coastal/tidal dredging projects;
- activities in inland/non-tidal waterbodies and watercourses;
- withdrawal of water from a non-tidal/inland river, stream, pond or lake;
- withdrawal of water from a wetland, marsh, swamp, or bog hydrologically connected to a non-tidal/inland river, stream, pond or lake;
- withdrawal of groundwater from stratified drift deposits hydrologically connected to a non-tidal/inland river, stream, pond or lake.

Note: Fisheries consultation is **not required** for docks and marinas on Long Island Sound.

Part I: Applicant and Site Information (to be completed by APPLICANT) (continued)

5. **DEEP Pre-application Contact:** Indicate name of permit analyst or engineer, if applicable.
John Wengell

6. **Project Description:** Provide or attach a brief, but thorough, description of the project including any measures to protect, enhance or restore fish populations:
See Attached

Part II: Fisheries Determination (To be completed by DEEP Fisheries Staff only)

To Fisheries Staff - This completed consultation form is required to be submitted as part of an application to DEEP. The application has not yet been submitted to DEEP. Please review the enclosed materials and determine whether the project will significantly impact any fisheries or fisheries habitat. You may provide comments or recommendations regarding the proposal. Send this completed form to the applicant and copy the DEEP analyst, if known, or the applicable WPMD/LWRD Supervisor. If the proposed work **WILL** significantly impact any fisheries and/or habitat or if you have any comments or concerns regarding the regulatory review for this project, contact the DEEP analyst, if known, or the applicable WPMD/LWRD Supervisor.

DEEP FISHERIES DIVISION DETERMINATION

Date Consultation Form received: 9/16/20

Please check applicable boxes and return the completed Consultation Form to the applicant:

- I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat;
- I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat **if the below Recommendations are followed**; and/or,
- I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat **if the design features shown on the attached plans are incorporated**. Fisheries staff to sign and date plans and return to the applicant with the completed Consultation Form.

COMMENTS/RECOMMENDATIONS (or check here if these are attached following this page:):

DEEP/Fisheries Division staff should be contacted and present during the installation of the rock vane downstream of the bridge.

 "By entering my name below, I agree that I am providing my legal signature, and am legally bound by the determination above."

	<u>9/17/20</u>
Signature of Fisheries Division Staff	Date
Bruce H Williams	EP Fisheries Biologist
Print Name of Fisheries Division Staff	Title